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Courtney N. Baker

University of Massachusetts Amherst

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ATTRITION FROM A PARENT TRAINING PREVENTION PROGRAM FOR
CONDUCT PROBLEMS

A Thesis Presented

by

COURTNEY N. BAKER

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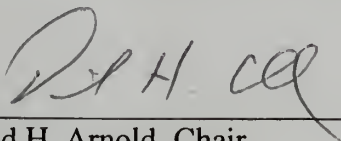
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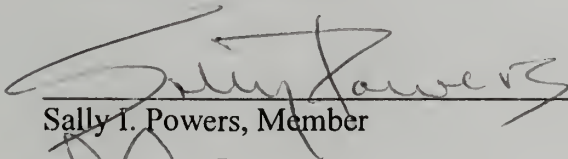
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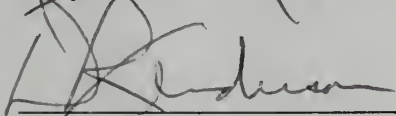
Approved as to style and content by:



David H. Arnold, Chair



Sally I. Powers, Member



Daniel R. Anderson, Member



Melinda A. Novak, Department Head
Psychology

ABSTRACT

Attrition presents a major problem for researchers and service providers. Although little is known about attrition from prevention programs, the problem of attrition may be particularly difficult to address in this setting. This study describes predictors of participation in and attrition from a parent training program intended to prevent conduct problems in preschoolers. Information was gathered from 107 preschoolers, their parents, and their teachers. Parent perceptions and independent ratings of externalizing behavior, child gender, socioeconomic status (SES), and ethnicity were investigated as possible predictors of participation and attrition. SES was related to participation, with lower income families less likely to participate. Child externalizing behavior was related to attrition, with fewer behavior problems associated with more parent attrition. Comparisons between similarly socioeconomically disadvantaged African-American and Puerto Rican families failed to demonstrate any significant differences in participation or attrition. In addition, the data suggest three distinct patterns of attrition, which may have practical implications related to retention strategies.

CONTENTS

	Page
ABSTRACT.....	iii
LIST OF TABLES.....	v
LIST OF FIGURES	vi
CHAPTER	
I. INTRODUCTION	1
Child Characteristics.....	4
Parent Characteristics.....	6
Structural and Demographic Characteristics	7
Hypotheses.....	9
II. METHOD.....	11
Participants.....	11
Procedure	11
Measures	13
Parent Rated Externalizing Behavior.....	13
Teacher Rated Externalizing Behavior	14
Observed Externalizing Behavior	14
Participation and Attrition.....	15
III. RESULTS	16
Descriptive Statistics.....	16
Externalizing Behavior Problems	17
Child Gender.....	19
Socioeconomic Status	19
Ethnicity.....	20
IV. DISCUSSION.....	22
REFERENCES	32

LIST OF TABLES

Table	Page
1. Descriptive Statistics for and Intercorrelations Between Measures of Externalizing Behavior Problems.....	29

LIST OF FIGURES

Figure	Page
1. Attrition from parent training by session for parents who attended at least one session.....	30
2. Attrition from parent training across sessions by attrition category (incremental attrition, mixed attrition, and no attrition) for parents who attended at least one session.....	31

CHAPTER I

INTRODUCTION

Experimental intervention studies provide practical knowledge and inform psychological theory. Such controlled trials have established parent training programs, which focus on reducing coercive parent-child interactions and increasing authoritative and nurturing parenting, as the preferred method for treating conduct problems in children (Eyberg et al., 2001; Kazdin, 1987; Patterson, Dishion, & Chamberlain, 1993; Reid, Webster-Stratton, & Baydar, 2004; Webster-Stratton, 1984, 1994). In fact, two parent training programs are classified as well-established treatments according to the criteria defined by Chambless and Hollon (1998; Brestan & Eyberg, 1998). Researchers are beginning to utilize parent training programs in prevention studies for children at-risk for developing conduct problems (Conduct Problems Prevention Research Group [CPPRG], 2002; Webster-Stratton, 1998; Webster-Stratton, Reid, & Hammond, 2001). However, the contribution of this prevention research to the field and of these programs to the participants has been limited somewhat by consistently high attrition rates.

In preventative intervention research, many potential methodological issues can be eliminated or reduced through careful planning. However, attrition presents a major problem for even the most well-planned and well-executed intervention projects. In treatment settings, estimates of attrition rates for children referred to outpatient clinics for conduct problems range from 40 to 60% (Kazdin, 1996). Orrell-Valente and colleagues (1999) suggest in their review of attrition from parent training intervention studies that dropout rates are as high as 50%. Similarly, Frey and Snow's (2005) review of the literature states that attrition from parent training groups is consistently at or above 40%,

even when financial incentives are offered and when childcare, refreshments, and transportation are provided. These findings are for children already exhibiting oppositional, aggressive, or antisocial behavior; less information is available for prevention efforts. In the Fast Track study, where kindergartners at high risk for developing conduct problems were targeted in a prevention effort, parents missed an average of 43.7% of parent training sessions (Orrell-Valente, Pinderhughes, Valente, & Laird, 1999). Although Webster-Stratton and her colleagues do not report an overall attrition rate for their parent training studies on the prevention of conduct problems in Head Start children, 40% of mothers in the randomly assigned intervention group attended less than three parent training sessions and were considered “non-attenders” in statistical analyses (Reid et al., 2004).

Losing participants negatively affects the validity of a study. Attrition compromises random assignment to groups and therefore also violates the assumption that comparison groups are equivalent on variables like socioeconomic status (SES), parent stress, or parent psychopathology. As well as threatening the internal validity of a study, attrition also makes it difficult to generalize the effects of the intervention, which may only pertain to those participants who are willing or able to complete it. Finally, attrition reduces sample size and statistical power.

The clinical effects of attrition can be just as concerning as the methodological ones. Nearly always, subjects asked to participate in intervention programs are selected because they need the service that is being provided. For example, Fast Track invited families to participate when their children’s behavior problems were classified at or above the 90th percentile (Orrell-Valente et al., 1999). Similarly, prevention research

often focuses on children who have an increased likelihood of developing conduct problems due to risk factors associated with poverty (Webster-Stratton & Hammond, 1998). Compared to participants who complete programs, those who drop out before the intervention is over are much less likely to benefit (Prinz & Miller, 1994). In addition, participants who drop out of treatment increase the cost of providing services and occupy treatment slots that others could have used (Kazdin, Holland, Crowley, & Breton, 1997; Murphy, 1992).

While most of the work on attrition has focused on programs which treat existing behavior problems in children, attrition may be an even more salient issue for prevention efforts. Unlike research on interventions which target existing problems, prevention researchers first have to convince potential at-risk participants of their need for the program. Once participants have agreed to take part, researchers must work consistently to retain them throughout the course of the prevention program. Because participants in prevention research are not seeking services, they may not be inclined to stay involved beyond when their expectations have been met, especially if they fail to see the relevance of the intervention (Kazdin, 2000; Kazdin, Holland, & Crowley, 1997; Kazdin, Holland, Crowley, et al., 1997; Prinz, et al., 2001; Spoth, Redmond, Hockaday, & Shin, 1996).

The need for research concerning attrition is obvious. A recent review of longitudinal studies revealed that fewer than 25% included descriptions of how the data were checked for patterns due to attrition (Ahern & Le Brocque, 2005). Researchers may lack the knowledge to prevent or assess attrition because few studies exist which address this topic, especially within specific populations or research areas. For example, as few as 1-2% of psychotherapy attrition studies are estimated to focus on children and

adolescents (Baekeland & Lundwall, 1975; Pekarik & Stephenson, 1988), and studies which address attrition from parent training programs for child behavior problems, especially prevention programs, are virtually nonexistent. However, drawing from research on attrition from parent training treatment programs, child psychotherapy for conduct problems, and academic interventions, several variables can be hypothesized to be related to attrition from parent training prevention programs. These variables can be categorized as child characteristics, parent characteristics, and structural and demographic characteristics.

Child Characteristics

In many cases, children who need interventions the most are most likely to drop out. Specifically, the more severe the child's externalizing behavior is, the more likely his or her family is to miss sessions or drop out of interventions altogether (August, Egan, Realmuto, & Hektner, 2003; Kazdin, 1990; Kazdin, Holland, & Crowley, 1997; Kazdin, Mazurick, & Bass, 1993; Prinz & Miller, 1994). One contrasting pattern was discussed by Reid et al.(2004), who found that parents in a prevention study for conduct problems were more likely to stay involved if they experienced their children's externalizing behavior at home. Attrition may be associated with externalizing behavior problems in different ways for interventions that focus on existing problems rather than on prevention. These conflicting findings point to the fact that the since the parent decides when and why to leave a parent training program, it may be important to consider whether parents' perceptions of their children's behavior problems predict attrition beyond those of independent raters. Although Winsler and Wallace (2002) demonstrated that parents perceive more externalizing behavior than teachers, other research has shown

that independent raters report higher levels of externalizing behavior than parents for those children who drop out of interventions (Prinz & Miller, 1994). Understanding how severity of externalizing behavior is associated with attrition from parent training programs will provide knowledge which can be used to increase retention of participants in both research and clinical settings.

Other child characteristics associated with attrition also fit with the notion that those who need help the most are least likely to participate, including the presence of one or more diagnoses, academic dysfunction or delay, lower IQ, and contact with antisocial peers (Kazdin & Mazurick, 1994; Kazdin et al., 1993; Peters, Calam, & Harrington, 2005). The majority of this research focuses on lower and middle income 3 to 14-year-old boys referred for outpatient treatment for aggressive, antisocial, or oppositional behavior. Only three of the articles included above specifically assess attrition from parent training programs (August et al., 2003; Peters et al., 2005; Prinz & Miller, 1994), and none of them involved a prevention program.

Because most of the attrition literature for children and adolescents focuses on treatment rather than prevention, girls are much less likely to be included as participants, due to the fact that they are less often referred for conduct problems. However, theory and evidence both suggest that children exhibiting the same symptoms may be treated differently, depending on their gender. Because of gender stereotypes, parents and teachers may become concerned about aggressive or disruptive behavior in boys while dismissing or ignoring similar behavior in girls (Hastings & Rubin, 1999; Miller, 1995; Ostrov, Crick, & Keating, 2005). Similarly, ADHD symptom detection and treatment was five times more likely for boys than for girls in one study (Bussing, Zima, Gary, &

Garvan, 2003). I am aware of only two attrition studies that directly address gender. In a parent training program for children with externalizing problems, parents with a noncompliant daughter were at increased risk for dropping out (Furey & Basili, 1988). In contrast, in a Head Start literacy intervention, within a group of children who infrequently verbally interacted with their caregivers, parents of boys were more likely to drop out of the program (Sarkin, Tally, Cronan, Matt, & Lyons, 1997). These findings suggest that the gender of the child may be associated with parents' decisions to participate or continue in a parent training prevention study, but little research directly addressing this topic exists.

Parent Characteristics

Similar to the findings concerning child characteristics associated with attrition, parents most in need of help are the least likely to stay involved. Several parent characteristics have been associated with attrition, including parent depression, history of antisocial behavior, and adverse childrearing behavior (Furey & Basili, 1988; Kazdin, Holland, & Crowley, 1997; Kazdin & Mazurick, 1994; Kazdin et al., 1993). The most commonly replicated parent characteristic predicting attrition is the amount of life stress the parents report experiencing at the time of the first assessment (Attride-Stirling, Davis, Farrell, Groark, & Day, 2004; Kazdin, 1990; Kazdin et al., 1993; Prinz & Miller, 1994). Parents' feelings about their relationship with program staff and their perceptions about the relevance of the intervention also play important roles in attrition (Kazdin, 2000; Kazdin, Holland, & Crowley, 1997; Kazdin, Holland, Crowley, et al., 1997; Orrell-Valente et al., 1999). For researchers who target linguistically diverse populations, a

good relationship between participants and program staff may be facilitated by having programs offered in languages in which parents feel most comfortable speaking.

Although parent characteristics ranging from psychopathology to amount of life stress to relationship with program staff are all thought to play an important role in attrition from parent training prevention programs, these parent qualities are not the focus of the present study.

Structural and Demographic Characteristics

Several structural or demographic characteristics are also associated with attrition from intervention programs which, like the child and parent characteristics, again fit with the notion that those who need help the most are least likely participate. For example, certain family constellations including younger mothers, single parents, and the presence of a nonbiological head of household all predict attrition from outpatient treatment of conduct problems including a parent training component (Kazdin, Holland, & Crowley, 1997; Kazdin & Mazurick, 1994; Kazdin et al., 1993). However, the most consistent predictor of attrition is SES, with lower SES associated with dropping out (Furey & Basili, 1988; Harwood & Eyberg, 2004; Kazdin, 1990, 1996; Kazdin, Holland, & Crowley, 1997; Kazdin et al., 1993; Peters et al., 2005; Prinz & Miller, 1994). Though the specific reasons for this pattern are not well understood, research suggests that socioeconomically disadvantaged participants' education level, rather than income, effectively predicts who is likely to drop out of an intervention (Spoth, Goldberg, & Redmond, 1999). In support of this conclusion, other researchers have demonstrated that increased parent education is associated with involvement in children's early education (Fantuzzo, Tighe, & Childs, 2000).

Minority group status has also been shown to predict attrition (Kazdin & Mazurick, 1994; Kazdin et al., 1993), although, in many studies, ethnicity may be confounded with SES. However, Kazdin, Stolar, and Marciano (1995) noted that African-American families tended to drop out at a greater rate than Caucasian families (59.6% compared to 41.7%), with ethnicity accounting for significant variance beyond predictors like SES, family constellation, and life stress. It is possible that members of minority groups may have reduced access and increased barriers to services like parent training programs because of language needs or past and current discrimination (Comer, 1977; Echeverry, 1997; Illovsy, 2003; Murry et al., 2004; Saba & Rodgers, 1989). For example, ADHD symptom detection and treatment has been shown to be twice as likely for European Americans as for African-Americans among a population of children who would qualify for an assessment (Bussing et al., 2003). In addition, while cultural values which discourage support-seeking from non-family members have been associated with higher resistance to outside involvement in family affairs (Prinz & Miller, 1991), so have lower SES levels (Spoth et al., 1996), though these conclusions may again be confusing ethnicity and SES. Beginning to parcel out which aspects of attrition are due to stressors related to poverty and which are determined by cultural differences will help both researchers and service providers.

Generally, an accumulation of these risk factors seems necessary to predict attrition (Kazdin et al., 1993), although socioeconomic disadvantage is such a strong predictor that it may be enough in some cases. In the end, parents decide whether their family should stay involved in or drop out of an intervention study. Although many

factors have been shown to predict attrition, the general thrust is simple: the more stressful and difficult a parent's life is, the harder time he or she has staying involved.

Hypotheses

Researchers are just beginning to better understand which characteristics are associated with attrition from parent training prevention programs for child behavior problems. This study aimed to add to this effort by evaluating attrition in the context of the Webster-Stratton's *Incredible Years* parent training program. This program is one of the state-of-the-art programs for treating conduct problems in children (Webster-Stratton, 1994).

First, I expected to replicate the finding that severity of children's behavior problems predicts attrition. In addition, because parents make the decision to stay in or drop out of parent training programs, I hypothesized that parent perceptions of children's externalizing behavior would predict attrition beyond those of independent raters. Information about each child's externalizing behavior from parents and independent raters was utilized to test this hypothesis.

Secondly, the child characteristic of gender has been almost completely ignored in the attrition literature. Because of gender stereotypes, it is distinctly possible that the same externalizing behavior could be seen as normative in boys and problematic in girls, because boys are "supposed" to be more active. Alternatively, perhaps parents worry more about boys because they may be more "prone" to aggression. Because almost no research on gender and attrition has been published, exploratory analyses were conducted concerning the relationship of gender to attrition in order to determine whether parents of boys or girls are more likely to drop out of the intervention.

Hypotheses which concern structural and demographic variables that may be associated with attrition were also investigated. First, I expected to replicate the finding that low SES predicts attrition. In most previous research, investigators have compared Caucasian and African-American families on their participation and attrition rates without taking the effects of SES into account. In contrast, in this study I utilized exploratory analyses to compare the attrition rates of socioeconomically disadvantaged African-American and Puerto Rican families, groups which were chosen because of their similar SES, in order to determine if differences existed between these two minority groups' attrition rates. It is possible that members of these ethnic minority groups may experience the intervention differently than expected due to language needs or views concerning when and why to seek help. These analyses are a step toward determining whether this parent training intervention is appropriate for the needs of either of these groups and therefore provides an opportunity to improve future intervention work with these populations.

CHAPTER II

METHOD

Participants

The parents of 107 preschool children (56 boys and 51 girls) were randomly assigned to the intervention group as part of a larger project (Doctoroff & Arnold, 2004). 51 of these children (25 boys and 26 girls) and their parents actually participated in parent training. Therefore, a total of 107 children, their parents, and their teachers were included in statistical analyses related to participation, while 51 children, their parents, and their teachers were included in statistical analyses related to attrition.

Families were recruited from seven childcare centers in two urban New England areas. Five of the seven centers serve economically disadvantaged families from ethnically diverse backgrounds, and the two other centers serve predominantly Caucasian families with higher SES. Families from the disadvantaged sample reported a median income of \$28,250, while families in the more affluent sample reported a median income of \$61,000. For the purposes of this study, families will be identified as either high or low income families based on the childcare center they utilized. Parents identified 26% of the children as African-American, 34% as Hispanic, 30% as Caucasian, and 10% as of mixed ethnicity. The mean age of the children participating in this study was 4.6 years (range 3.2 to 6.2 years).

Procedure

Parents learned about the project through a letter sent home with their children from each preschool center. After approximately 2 months of the school year, families interested in participating attended a 2-hour meeting. During the meeting, parents

completed questionnaires designed to elicit demographic information and to identify behavior problems. Each parent also participated in a structured interview to ascertain more specific information about his or her child's externalizing symptoms. Doctoral students in clinical psychology with extensive training administered these interviews. Teachers completed assessments of child behavior for all participating children in their classes. When more than one teacher was in a classroom, all teachers completed questionnaires and average scores were used. After this initial meeting, research assistants visited preschool classrooms and videotaped children during both free play and structured learning activities. Research assistants focused the camera on an area of the room with a group of children for 3 minutes, scanned the classroom, and then focused on the proximal group of children for 3 minutes. If all of the children were assembled in one location, the research assistants focused the camera on the entire class. Each child was on camera for an average of 43 minutes. The majority of videotaping for each classroom was completed on one day, but some classrooms were taped on two separate occasions to increase the time the children were videotaped.

Parent training generally occurred in eight sessions over an eight week period during the late fall. Parent training at one center included only six sessions over an eight week period, because all but one parent dropped out after the third session. Although sessions were originally scheduled to be held weekly for eight consecutive weeks, schedules were adjusted as needed for holidays. Sessions were held on weekday evenings at the preschool centers, and meals and child care were provided to facilitate attendance. Parents who had previously attended a session were called by program staff after an absence, and all parents who had ever attended were called before the last

session. Two experienced clinical psychology doctoral students led each parent training session following the guidelines of Webster-Stratton's videotape intervention package, which has been classified as a well-established treatment for child externalizing problems (Brestan & Eyberg, 1998). This program helps parents build positive relationships with their children and learn consistent, firm, appropriate responses to handling aggression and other discipline problems by showing parents videotaped vignettes of parents interacting with their children in appropriate and inappropriate ways. After watching the vignettes, discussions are held which target how the principles that were learned might apply to the parents' situations. In addition, parents are given homework assignments to practice the skills they have learned in the program.

Measures

Parent rated externalizing behavior

Parents completed the Eyberg Child Behavior Inventory (ECBI), a 36-item self-report inventory of externalizing behaviors in children (Eyberg & Pincus, 1999). Norms for this instrument exist for children between the ages of 2 and 17, and this measure has strong reliability and validity for detecting behavior problems in young children (Boggs, Eyberg, & Reynolds, 1990; Eyberg & Ross, 1978). The Intensity factor, a measure of the severity of behavior problems (e.g., aggression, defiance, lying, overactivity, and inattention), was utilized to measure behavior problems. The Problem factor, a measure of the number of difficult behaviors, was not utilized in this study due to methodological issues.

Parents were also administered an adapted version of the disruptive behavior module of the Diagnostic Interview Schedule for Children – Parent Version (DISC-P;

Fisher, Wicks, Shaffer, Piacentini, & Lapkin, 1994), which was revised to be appropriate for interviewing parents about externalizing symptoms in preschool-age children. Although this instrument was designed to evaluate children 9-years-old and older, it has been utilized successfully to evaluate younger children (e.g., Anastopoulos, Spisto, & Maher, 1994). DISC-P scores represent the number of home and school attention-deficit/hyperactivity disorder symptoms (ADHD), oppositional defiant disorder symptoms (ODD), and conduct disorder symptoms (CD) endorsed by caregivers. A total externalizing score is created from these subscales. This interview takes approximately 20 minutes to administer. The DISC-P has acceptable reliability and relates to other measures of symptoms in young children (e.g., Lahey et al., 1998).

Teacher rated externalizing behavior

Teachers were administered the teacher form of the Child Behavior Profile (t-CBP) to measure the frequency of externalizing symptoms displayed by each participating child in the classroom. This 113-item scale has been standardized for use with children between the ages of 4 and 18, and has been used extensively with preschool children. Adequate reliability and validity data has been established for this measure (Achenbach, 1991). In addition, teachers have been demonstrated to be accurate raters of children's externalizing behaviors (Doctoroff & Arnold, 2004; Stanger & Lewis, 1993).

Observed externalizing behavior

Classroom observations were collected utilizing a coding system adapted from existing systems (e.g., Robinson & Eyberg, 1981). Each child was coded individually for *aggressive misbehavior*, with behaviors rated as present or absent during 15-second intervals. *Aggressive misbehavior* was defined as physically aggressive or threatening

acts toward people or objects and verbal aggression. A second coder independently rated 51 children of the larger sample from which the participants of this study were obtained in order to calculate interrater agreement using an intraclass correlation coefficient: aggressive misbehavior ICC = .63.

Participation and attrition

All parents randomly assigned to the intervention group who completed the initial assessment session were included in the sample. For the purposes of this study, participation was included in the analyses as a dichotomous outcome variable (attended vs. never attended). For those parents who attended at least one parent training session, attrition was calculated as percentage of parent training sessions missed. Families were given credit for attending when at least one parent came to a meeting. These definitions were chosen as representing the best overall measures of participation and attrition, though future studies with greater power should examine different ways of operationalizing these constructs.

CHAPTER III

RESULTS

Descriptive Statistics

From the 107 families assigned to the intervention group, 51 families attended at least one parent training session. The nature of parent involvement at these two stages of the intervention may be fundamentally different. Therefore, all analyses were run separately for both participation and attrition.

For those 51 families that attended at least one session, parents missed an average of 40% of the sessions. The nature of the attrition pattern becomes apparent when parent attendance is evaluated for each of the eight sessions (see Figure 1). Attrition from the intervention generally increased steadily between the first and seventh session, starting with only about 16% of parents missing the first session and increasing to about 60% of parents absent for the seventh session. As the Webster-Stratton parent training program progresses, it focuses on different information relating to re-enforcing the positive parent-child relationship and utilizing appropriate discipline. Because the attrition rate generally climbs steadily, it seems unlikely that the content of any particular session was responsible for parent drop-out.

The nature of attrition from this parent training program also seems to differ depending on what type of attrition is being considered (see Figure 2). Because parents were specifically encouraged to attend the final session in order to complete post-intervention data, this session was excluded from these descriptive analyses. Of those 51 families that attended at least one parent training session, 6 of them, or about 12%, never missed a session. The remaining 88% of families can be categorized as either missing

sessions incrementally or missing a mixed pattern of sessions. Seventeen families, or about 33% of families, missed sessions incrementally, meaning that once they missed a session, they did not return to the program. Seven of these 17 families attended only the first session. Two additional families failed to return after each subsequent session. The attrition rate for these families rose steadily over the course of the intervention, finally leveling out at the sixth session at about 88%. 28 families, or the remaining 55%, evidenced a mixed pattern of attrition. For these families, sessions were missed but parents returned again for at least one more session. The majority of these families attended either four or five sessions. The attrition rates for these families were more complex, bouncing between about 20 and 50% over the course of the intervention and finally leveling out at about 45% at the sixth session. The attrition rates for those families with incremental attrition ($M = 63.45$, $SD = 26.67$) and those with mixed attrition ($M = 33.42$, $SD = 18.47$) differ significantly from one another, $t(43) = 4.46$, $p < .001$. In this sample, it can be concluded that most families that dropped out permanently were lost due to incremental attrition, but that mixed attrition also had a significant impact on the amount of time that parents spent learning the parent training techniques. Although these groups differ significantly from each other on mean attrition rates, one-way ANOVAs comparing the three groups on the predictors utilized in this study found no significant between-group differences. Therefore, post-hoc contrasts were not conducted.

Externalizing Behavior Problems

Means and standard deviations of and intercorrelations between measures of externalizing behavior problems are presented in Table 1. To test the hypothesis that increased child behavior problems are associated with decreased parent participation in

interventions, the simple relationships between both participation and attrition and child externalizing behavior were estimated. Parent perception of child misbehavior as well as teacher report of aggressive and rule-breaking behavior and observer ratings of aggressive misbehavior were analyzed independently. T-tests were conducted comparing child behavior ratings of families that came to at least one session to those who never attended. No significant differences were found. For those families that attended at least one session, Pearson product-moment correlations were calculated to estimate the relationship between attrition rate and child externalizing behavior for each of the child behavior ratings. Opposite from hypothesized, teacher ratings of the child's delinquent behavior were negatively related to parent attrition from the program, $r(49) = -.29, p < .05$. No other significant relationships were found.

Regressions were fit to estimate the relationships between both participation and attrition and parent, teacher, and observer report of child externalizing behavior, controlling for all other reporters. First, a logistic regression was fit predicting the participation binary outcome variable from the child behavior ratings for the larger pool of families that volunteered to participate in the project. No significant effects were found. A multiple regression was then fit predicting attrition from the child behavior ratings for those families that attended at least one parent training session. Standardized regression weights are reported. Parent report and observer ratings of externalizing behavior failed to predict attrition for those families that attended at least one parent training session. In contrast, teacher ratings of delinquent behavior predicted attrition among those parents who attended at least one meeting, which suggests that increased attrition from a parent training prevention program is associated with fewer rather than

more child behavior problems, $B = -.60$, $t = -2.21$, $p = .03$. This finding is contrary to the hypothesis, which predicted that parents would be more likely to drop out as externalizing behavior increased. This regression analysis also tested the hypothesis that parent ratings of behavior problems would predict attrition above and beyond independent ratings of child behavior and failed to provide support for this hypothesis.

Child Gender

Exploratory analyses concerning the relationship of gender to attrition were conducted in order to determine whether parents of boys or girls were more likely to drop out of the intervention. A chi-square test was calculated comparing the frequencies of the presence of a male or female target child between those families that attended at least one session and those who never attended a meeting. Similarly, a t-test was conducted comparing the attrition rates of families that attended at least one session by gender of the target child. No significant differences were found in participation or attrition rates between parents of boys and those of girls.

Socioeconomic Status

Rates of participation between high and low SES families were compared with a chi-square test. SES was a powerful predictor of participation for the larger pool of families that volunteered to participate in the study, $\chi^2(1) = 15.78$, $p < .001$, two-tailed. Whereas 83% of high SES parents attended at least one parent training session, only 37% of low SES families did. A t-test was calculated to compare the attrition rates of families that attended at least one session by income. In contrast to the strong relationship between SES and participation, SES failed to predict attrition rates for those parents who

attended at least one session. For these families, low income families missed an average of 42% of sessions while high income families missed an average of 36% of meetings.

Ethnicity

For the purposes of these analyses, mixed ethnicity participants have been excluded. For that larger pool of parents which included all of the families that volunteered to participate in the intervention, no significant differences in participation were found between the attrition rates of African-American and Puerto Rican families. In this study, 41% of African-American families and 29% of Puerto Rican families who volunteered to participate attended at least one session. Similarly, for those 51 parents who attended at least one session, the attrition rates of African-American and Puerto Rican families were not significantly different, with African-American families missing an average of 47% of sessions while Puerto Rican families missed an average of 28% of sessions.

Finally, this study attempted to investigate the independent effects of parent and independent rater perception of behavior problems, child gender, and SES in predicting participation in and attrition from a parent training prevention program, by including these variables in one regression equation. A logistic regression was fit to the data to predict participation for the larger pool of families that volunteered to participate in the project. Controlling for all raters' reports of child externalizing behavior, as well as child gender, income was the primary predictor of participation, with higher incomes marginally associated with families attending at least one parent training session, $p = .07$. A multiple regression was fit to predict attrition for those 51 families that attended at least one parent training session. Controlling for parent report and independent ratings of

externalizing behavior, child gender, and family income, teacher report of delinquent behavior significantly predicted attrition, with increased delinquent behavior associated with decreased attrition, $B = -.71$, $t = -2.32$, $p = .03$. This model of attrition for those parents who attended at least one session explained 21% of the variance in the data, $F(7, 33) = 1.25$, $p = .30$.

CHAPTER IV

DISCUSSION

Controlled trials have helped make parent training programs the preferred method for treating conduct problems in children (e.g. Kazdin, 1987). However, both the research on and the clinical effectiveness of these programs has been limited by high attrition rates. This study highlights the role that participation plays in a prevention program for conduct problems in preschoolers. 56 of the 107 families that originally volunteered for the study failed to attend a single parent training session. This pattern suggests that researchers may need to work diligently to keep their recruited participants interested and informed as they transition from the recruitment to the intervention stage of the study.

Understanding what variables are associated with parents' participation in parent training prevention programs for conduct problems in preschoolers will help researchers and clinicians retain participants and clients once they have been recruited. SES was a predictor of participation, utilizing both simple analyses and controlling for the effects of parent report and observer ratings of externalizing behavior, as well as child gender. In a prevention program for parents of young children, SES may be critically important to consider during the recruitment stages of an intervention. Because lower SES is associated with decreased access to resources and increased life stress, transportation, food, and child care should be provided during parent trainings to facilitate attendance. This study also compared the participation rates of African-American and Puerto Rican families that come from a similarly disadvantaged socioeconomic background. No significant differences were found between these two groups. Unfortunately, almost all

ethnic minority participants in this study were also socioeconomically disadvantaged, so the effects of SES and ethnicity could not be disentangled. Future studies which are able to further unpack these findings will help clarify the role of these processes in parent participation.

Attrition may be a fundamentally different process than participation, although no studies to my knowledge have made this distinction. In this study, the average attrition rate for all parent training sessions for those 51 families that attended at least one session was 40%. This is consistent with the literature on attrition from both parent training programs (Frey & Snow, 2005) and child psychotherapy for conduct problems (Kazdin, 1996). When attrition is analyzed by session, it seems that many parents attend the first parent training session, but that attrition generally increases with each subsequent session until the final session, with a maximum attrition rate of nearly 60%. In this study, the final session was associated with a decrease in parent attrition, which may have been due to the researchers' active encouragement of parents to attend in order to fill out post-intervention measures, the parents' need for closure, or the celebratory nature of the final session. The fact that some parents returned for the eighth session suggests that they may have been committed enough to the program to comply with the researchers' requests or to desire closure, or that they enjoyed aspects of the training, like the social interaction with other parents, enough to rejoin the group and celebrate the completion of the program.

This study also identified three common patterns of parent attrition. First, a small minority of parents attended every session. About one third of the remaining families never returned to the parent training after they missed one session, with almost half of

this group attending only the first session. This incremental attrition pattern suggests that retention of parents should begin at the first session and that researchers and clinicians should consider actively reaching out to parents after they miss even one session. In addition, future research should help determine the reasons why these parents permanently dropped out of the program. Knowing whether these parents dropped out because they felt they could not benefit from the program, because they were unsatisfied with the program, or because they were worried about being behind their peers after missing a session will help researchers and clinicians strategize more effectively to prevent attrition.

Slightly less than two thirds of the families attended sessions sporadically, usually missing two or three sessions over the course of the program. Although the overall attrition rate of these families was much lower than that of families which never returned after missing a session, at the end of the program, it was still about 45%. The effectiveness of the intervention for these parents was likely diminished by their sporadic attendance, and researchers and clinicians should consider targeting attendance as a primary goal during future interventions. Unfortunately, this study lacked the power to detect possible differences in attrition predictors between the three patterns.

Understanding what variables are associated with parents' attrition from parent training prevention programs for conduct problems in preschoolers will help researchers and clinicians keep participants and clients involved once they have begun an intervention. A link between externalizing behavior and attrition was established for those families that attended at least one session, using both simple analyses and controlling for the effects of parent report and observer ratings of externalizing behavior,

child gender, and family income. Contrary to previous research, however, increased child rule-breaking behavior as reported by the child's teacher was associated with decreased attrition from the parent training. Therefore, in this preventative intervention for conduct problems, those parents who actually experienced behavior problems in their home were more likely to stay involved in the study. This finding is similar to the data reported by Reid et al. (2004), in that increased child misbehavior was associated with increased attendance. In this study, however, teacher report of externalizing behavior predicted decreased attrition, whereas Reid and her colleagues reported this pattern for parent reported conduct problems. In a prevention program for a community-based sample, rather than an intervention program for a clinical population, it makes sense that those parents whose children were not evidencing problematic externalizing behaviors chose to drop out of the program. It will be important in future research to determine whether degree of externalizing behavior as rated by the parent, the teacher, or an independent observer differentially predicts attrition from preventative parent training programs for conduct problems.

SES has been one of the most consistent predictors of attrition in the literature, regardless of the type of intervention being studied. Those families with the greatest amount of life stress and the fewest resources have traditionally been those least able to stay involved in programs like this parent training intervention. Although significant effects of SES were found only for participation, the relationship between the mean attrition rates of low and high SES families displays a similar pattern, with high SES families missing 6% fewer sessions than low SES families. It is possible that with a more specific measure of SES and more power to detect statistically significant differences,

SES might have become a significant predictor of attrition as well. Ethnicity has also been associated with attrition in previous research, although in many studies ethnicity is confounded with SES. This study, which was able to compare the attrition rates of African-American and Puerto Rican families with comparable incomes, failed to find significant differences in attrition between the two ethnic minority groups.

This study also hypothesized that child gender might predict participation in and attrition from a parent training program for conduct problems. However, gender was not associated with either phenomenon. It is possible that this study may have lacked the power to detect the effects of gender. Problematically, however, this study was also unable to take into account the child's siblings. It is likely that the relationship between the gender of the preschooler involved in the intervention and the attrition rate of the parents from the program was complicated by the presence of other children of both genders in the family.

The participants of this study were drawn from a diverse community population. One strength of this study is its validity as a community-based prevention program for conduct problems in preschoolers. This same aspect is also a weakness. Because this study utilizes a community rather than a clinical sample, many of the predictors potentially associated with participation and attrition, like child externalizing behavior, occurred at low frequencies. Therefore, it is possible that this study lacked the power needed to pick up some patterns among these variables. Other limitations are related to the measurement of predictors. For example, SES was measured in a crude fashion, resulting in a dichotomous variable. A more specific and complex measurement of SES might have allowed conclusions to be drawn relating to differences in income, education

level, or other relevant factors in predicting participation and attrition. A more fine-grained analysis of SES might also have led to conclusions about the different effects of SES and ethnicity, but in this study, these variables were too confounded to compare the participation and attrition rates of Caucasian and minority group families.

This study is one of the first to examine attrition in the prevention context. To my knowledge, previous studies have not made the distinction between participation and attrition, although these findings suggest that different constructs may be important at these different phases of the intervention. Specifically, low SES may be a barrier to participation in a prevention program for children's externalizing behavior. Although these parents may be interested in helping their children succeed, they may simply lack the resources to participate. In contrast, for those parents who manage to attend at least one session, severity of their children's externalizing behavior may be the most important predictor of attrition. In a prevention context, if parents are not seeing problematic behavior in their child, they may be less likely to stay involved in a parent training program for conduct problems. This study has also contributed information about the different patterns of attrition, which can be utilized to develop retention strategies. These ideas can be used in conjunction with other strategies that are currently being developed, like a brief intervention that aims to increase parent motivation for treatment and address potential barriers for treatment participation (Nock & Kazdin, 2005). This brief intervention has been demonstrated to be effective at increasing treatment attendance and adherence for parents involved in parent management training for their children's conduct problems.

Future research should focus on the seemingly different natures of participation in and attrition from community-based prevention programs. Determining which factors are important to helping families get involved on the one hand and stay involved on the other can help both researchers and clinicians. Although this study was able to delineate possible predictors of both participation and attrition, future studies with greater power should be able to detect more complex relationships between these and other theoretically relevant predictors, resulting in a more detailed analysis with findings more applicable to participant and client retention. In addition, future research should replicate and focus on the three distinct patterns of attrition and possible between- and within-group differences relating to the predictors of attrition that already exist in the literature.

Table 1

Descriptive Statistics for and Intercorrelations Between Measures of Externalizing Behavior Problems

Report	1	2	3	4	5
1. ECBI Intensity Factor ($M = 3.05$, $SD = .83$)	—	.47** ($n = 77$)	.35** ($n = 80$)	.23* ($n = 80$)	-.002 ($n = 76$)
2. DISC-P Total Externalizing Score ($M = 6.69$, $SD = 6.30$)		—	.31** ($n = 76$)	.30** ($n = 76$)	.08 ($n = 73$)
3. t-CBP Delinquent t-score ($M = 57.5$, $SD = 5.57$)			—	.71** ($n = 100$)	-.01 ($n = 89$)
4. t-CBP Aggressive t-score ($M = 57.89$, $SD = 8.09$)				—	-.05 ($n = 89$)
5. Observer-rated Aggressive Misbehavior ($M = .004$, $SD = .009$)					—

Note. ** $p < .01$, * $p < .05$

Figure 1: Attrition from parent training by session for parents who attended at least one session.

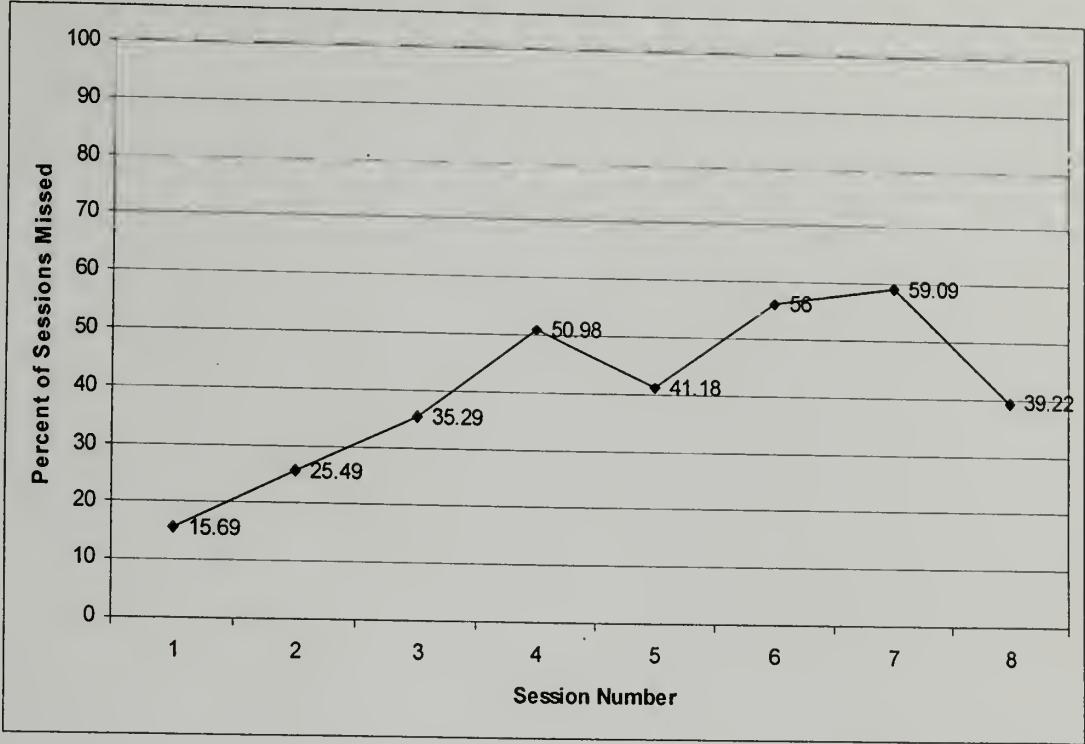
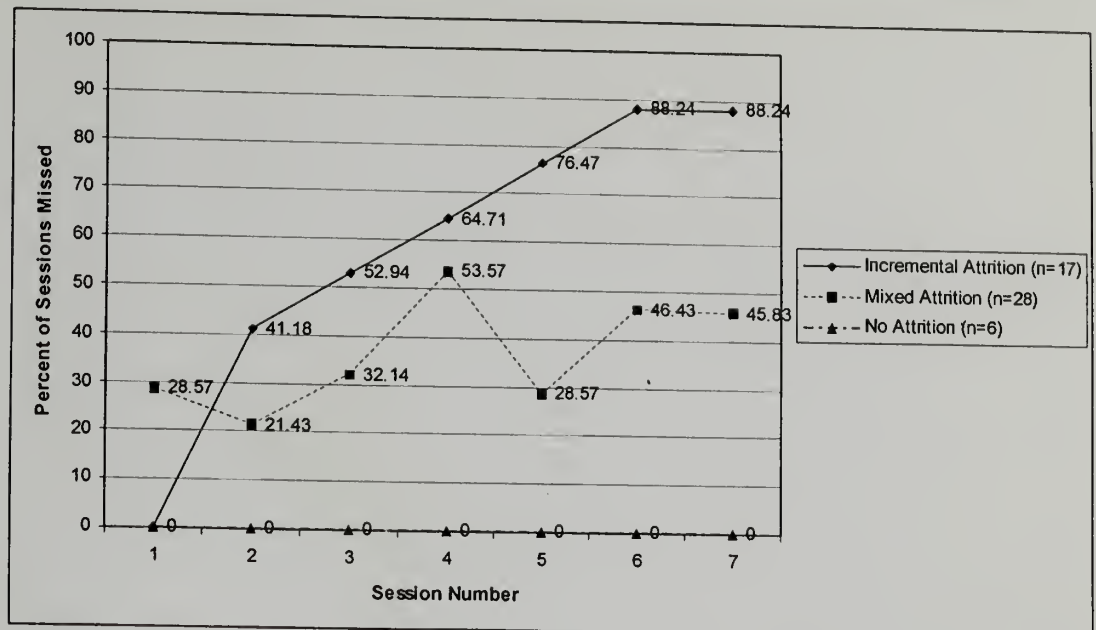


Figure 2: Attrition from parent training across sessions by attrition category (incremental attrition, mixed attrition, and no attrition) for parents who attended at least one session.



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